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Remarks/Arguments

Status of the Application

Claims 1-21 and 26 are pending in the application pursuant to Applicants' election without traverse in response to the restriction requirement. Claims 22-25 have been withdrawn as they relate to non-elected subject matter. Claims 1-21, 26 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting over copending applications and also stand rejected under the judicially created doctrine of obviousness-type double patenting over issued U.S. patents. Claim 5 stands rejected under 35 U.S.C. §112, second paragraph. Claims 1-16, 18-21, 26 stand rejected under 35 U.S.C. §102.

Allowable Subject Matter

The Examiner has indicated that claim 17 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and that the obviousness-type double patenting rejection is overcome.

Brief Statement of the Invention

The application is directed to a low volatile organic content (low VOC) coating composition that comprises a crosslinkable component and a crosslinking component. The crosslinkable component comprises a copolymer comprised of one or more non-functional acrylate monomers and one or more functional methacrylate monomers. The copolymer thus constituted has an average of 2 to 25 crosslinkable groups selected from one or more of hydroxyl, acetoacetoxy, carboxyl, primary amine, secondary amine, and epoxy. The crosslinking component is selected from one or more of polyisocyanate, polyamine, ketimine, melamine, epoxy, and polyacid. The crosslinking component is capable of crosslinking with the crosslinkable groups on the crosslinkable component during cure.

The copolymerization of non-functional acrylates and functional methacrylates to form the crosslinkable component is a critical element of the present claims. This combination of comonomers in the monomer mixture used in the polymerization process ensures functionality on almost every copolymer chain, with low levels of both non-functional chains and mono-functional chains even at the low molecular weights synthesized. The combination thus avoids random polymerization, which would result in unacceptable distributions of functional (crosslinkable) groups and in high levels of undesirable non-functional and mono-functional chains. The presence of such undesirable chains will generally result in poor coating

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properties such as low cross-link density, high soluble fraction, low hardness, poor adhesion and poor chip and humidity resistance.

On the other hand, copolymers of the invention having a T_g of greater than 10° C by using appropriate monomers result in coating compositions exhibiting desirable application viscosity, reactivity, and high crosslinkable functionality, which coatings possess improved cure time and other desirable properties. The VOC of the resulting coating compositions, as compared to those containing conventional reactive oligomers, can be lowered without adversely affecting coating properties.

This synopsis is supported by page 6, lines 9-34, and claim 1 of the application.

Claim Rejections - Non-Statutory Obviousness-Type Double Patenting

Claims 1-21, 26 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of copending Application No. 10/109,948, claims 1-10 of copending Application No.10/120,127, and claims 1-10 of copending Application No. 10/109,947 as well as claim 1 of each of U.S. Patent Nos. 6,558,745; 6,562,893; and 6,551,712. The Examiner has asserted that the claims of the instant application and the copending applications and patents are not identical, but are not patentably distinct being related as genus and species thereof.

In their response of August 17, 2005 to the first Office Action, the Applicants respectfully traversed these ODP rejections. In the interest of advancing prosecution, Applicants will file a terminal disclaimer in accordance with 37 C.F.R. § 1.321(c) to avoid these rejections.

Claim Rejection – 35 U.S.C. §112

Claim 5 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner has stated that the term “non-functional” in claim 5 is considered indefinite because the monomers recited in the Markush group contain certain functional groups. The Applicants respectfully maintain that this claim is definite and in proper form.

The Examiner has maintained the rejection based on a rationale that Applicants' Markush group contradicts the commonly understood meaning of “functional” in general chemistry. This rejection remains respectfully traversed.

The privilege of lexicography is a broad one. Applicants recognize that a specially defined term should not be misdescriptive. In this instance, the Applicants have chosen to be their own lexicographers to avoid prolixity in the claims. The one word “non-functional” substitutes for a cumbersome phrase, i.e., a group that is not reactive with the crosslinkable

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functional group on the functional component. As noted previously, the functional and non-functional groups have been defined specifically on page 7, lines 1-22 of the application using that precise terminology. It is also clear from the specification and claims, that functional refers to a substituent group crosslinkable with a crosslinking component and that non-functional refers to a substituent group that is not crosslinkable (i.e., reactive with) a crosslinking component. For example, a crosslinking component is "capable of crosslinking with the crosslinkable groups on the crosslinkable component (during the curing step)" (page 5, lines 5-6 of the application). In other words, functional means a crosslinkable group on a crosslinkable component that is reactive with a crosslinking agent. Non-functional means a group on an acrylate monomer that is not reactive with a crosslinking agent.

Applicants also respectfully disagree that the recitation of the Markush group in claim 5 tied to the term "non-functional" is in any way misdescriptive or otherwise inappropriate. The intended meaning is clear from the context and the numerous antecedents in the specification. It is in all ways sufficient to enable one who is skilled in the art to recognize what is claimed by the inventors as their invention. That the Applicants have the right to define their terms in this way is recognized. See for example, *Johnson Worldwide Associates, Inc. v. Zebco Corp.*, 175 F3d 985, 50 USPQ2d 1607, 1610 (CAFC 1999): "Our case law demonstrates two situations where a sufficient reason exists to require the entry of a definition of a claim term other than its ordinary and accustomed meaning. The first arises if the patentee has chosen to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term." Here, a particular Markush group of substituents on a non-functional acrylate as "non-functional" groups. Non-functional in this sense relates to the inability to cross-link (non-reactivity) to form the final coating product during the cure phase. It is not to be confused with the generally understood concept of "functional group" as that term is generally understood, i.e., an atom or group of atoms that defines the structure of a particular family of organic compounds and determines their chemical properties. Given the textual support in the specification, and the context in the claims, it would be impossible for one of ordinary skill in the art to confuse the general meaning of "functional group" with the particular sense in which "non-functional" is used in the specification and claims.

The Applicants respectfully request that the rejection of claim 5 be withdrawn.

Claim Rejections – 35 U.S.C. §102

Claims 1-16, 18-21, 26 are rejected under 35 U.S.C. §102 as being anticipated by Barkac, et al., U.S. Patent No. 6,339,126. The application is directed to fast-curing

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performance coatings that cure at ambient or slightly elevated temperatures; Barkac is directed to a thermosetting composition (i.e., a composition that requires the influence of heat to become infusible and insoluble).

Applicants respectfully maintain their traverse of this rejection.

The thermoset composition of Barkac comprises a co-reactable solid, particulate mixture of: (a) a β -hydroxyalkylamide crosslinking agent, and (b) a polycarboxylic acid functional polymer having at least one radically transferable group containing at least one of polymer chain structures I or II:



and



M lacks carboxylic functionality but has at least one ethylenically unsaturated radically polymerizable monomer, and G has carboxylic acid functionality and at least one ethylenically unsaturated radically polymerizable monomer. The carboxylic acid functions form covalent bonds with the β -hydroxyalkylamide groups. Homoblock, diblock copolymer, alternative copolymer and gradient copolymer structures of formulas IV-VII are derived from formulas I and II (Col. 8, lines 16-42).

Representative components of M are set out at Co. 9, lines 32-63 and can include both acrylates and methacrylates among a number of other examples. Representative components of G are listed at Col. 10, lines 26-45 and may include both acrylates and methacrylates among a number of additional examples. Example A (Col. 20) illustrates the preparation of a carboxylic acid functional polymer useful in a thermosetting composition: the carboxylic active monomers include both acrylate (MAA) and methacrylate (MMA, n-BMA) monomers. Example B (Col. 21) illustrates the preparation of a carboxylic acid functional polymer: the carboxylic active monomers are methacrylates (MMA, n-BMA, t-BMA). The synthetic example of a preparation of a powder coating composition uses a mixture that contains carboxylic functional acrylate and methacrylate monomers, combining the products of Examples A and B (please see Table 2, Col. 22). Nothing in Barkac requires that only the G residue (carboxylic acid functional) may be methacrylic, and only the M residue, free of carboxylic acid functionality, may be acrylic. A critical limitation in the present claims is that the methacrylate monomers must be functional and the acrylate monomers must be non-functional. In the reference there is no such requirement. Accordingly, this claim limitation

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is missing from the reference, and therefore, the reference does not anticipate the present claims.

The crosslinking components of the present claims are selected from polyisocyanate, polyamine, ketimine, melamine, epoxy, and polyacid, as well as mixtures of them. There is no anticipation of these limitations in the reference. The only crosslinking agent of the reference is hydroxyalkyl amide. There are no amide crosslinking components in the present claims. Accordingly, the reference does not anticipate the present claims.

Summary

In view of the foregoing remarks and arguments, Applicants believe that the stated grounds of rejection have been overcome, and that a complete response to the Final Office Action mailed October 20, 2005 has been made in this paper. Applicants believe that the application stands in condition for allowance with withdrawal of all grounds of rejection. A Notice of Allowance is respectfully solicited. Alternatively, if the rejections are maintained, the Applicants request an advisory opinion. If the Examiner has questions regarding the application or the contents of this response, the Examiner is invited to call the undersigned at the telephone number provided below.

The Applicants believe that no fee is due with this submission. Should a fee, not accounted for herein, be due, please charge such fee to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

In view of the foregoing, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,



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